REMARKS

Claims 1-22 are pending in this application, of which claims 1, 4, 8, 9, 12, 15, 19, and 20 are independent. Applicant acknowledges, with appreciation, the Examiner's allowance of claims 4, 8, 9, 15, 19, and 20.

In this Amendment, claims 1 and 12 have been amended. Care has been exercised to avoid the introduction of new matter. Support for the present Amendment should be apparent throughout the originally filed written description of the specification. A Request for Continued Examination is filed herewith.

Claims 1, 5, 12, and 16 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Zhou et al., in view of Deng et al., and further in view of Essiambre et al., and further in view of Miller.

In the statement of the rejection, the Examiner asserted that the applied combination of Zhou et al., Deng et al., Essiambre et al., and Miller teaches an optical transmission system of the claims.

Applicant submits that the applied combination of Zhou et al., Deng et al., Essiambre et al., and Miller does not teach an optical transmission system including all the limitations recited in independent claim 1 which reads:

> 1. An optical transmission system, comprising:
>
> an optical transmitter including a non-temperature controlled direct modulation light source, said optical transmitter outputting CWDM (Coarse Wavelength Division Multiplexing) signal light in a signal wavelength band;
>
> an optical receiver receiving the signal light outputted from said optical transmitter;

an optical fiber transmission line for transmitting the signal light outputted from said optical transmitter as a transmission medium provided between said optical transmitter and said optical receiver, said optical fiber transmission line having a positive chromatic dispersion at an operation wavelength of said direct modulation light source; and

at least one non-temperature controlled dispersion compensator provided on an optical path between the signal outputting end of said optical transmitter and the signal entering end of said optical fiber transmission line,

wherein, at the signal emitting end of said optical fiber transmission line, the accumulated chromatic dispersion is set to negative over a temperature range of 0°C to 60°C, and

a wavelength range for the dispersion compensation is a range without a zero-dispersion wavelength of said transmission line.

The Examiner admitted that Zhou et al. does not disclose that the system operates over a temperature range of 0C° to 60C°. However, the Examiner asserted that Miller discloses that the normal operating temperature for optical fiber system is -40C° to 80 C°. According to the Examiner, it would have been obvious to operate the system of Zhou et al. within the range of 0C° to 60C° since this is one of numerous acceptable operating ranges for an optical fiber system based on the teaching of Miller. Applicant respectfully submits that there is no factual basis for the Examiner's assertion.

Applicant invites the Examiner's attention to the claimed limitation "the accumulated chromatic dispersion is set to negative over a temperature range of 0°C to 60°C, and a wavelength range for the dispersion compensation is a range without a zero-dispersion wavelength of said transmission line." In contrast, Millier teaches the temperature in a normal operation, but does not teach a dispersion compensation (see column 4, lines 47-51 cited by the Examiner). In addition, Miller does not teach that the normal operation is performed in a condition of negative chromatic dispersion. Deng et al. and Essiambre et al. are also silent on the claimed limitation "the accumulated chromatic dispersion is set to negative over a temperature

range of 0°C to 60°C, and a wavelength range for the dispersion compensation is a range without a zero-dispersion wavelength of said transmission line."

The Examiner admitted that Zhou et al. does not explicitly disclose that at either the signal emitting end of said optical fiber transmission line or at the signal receiving end of said optical receiver, respectively, the accumulated chromatic dispersion at the operation wavelength is set to negative. However, the Examiner asserted that Essiambre et al. discloses that using small negative residual dispersion results in better transmission performance than zero or slightly positive residual dispersion. The Examiner further asserted that it would have been obvious to use dispersion compensation that produces small negative residual dispersion for the system of Zhou et al. in order to achieve the best transmission performance as taught by Essiambre et al.

Essiambre et al. teaches a specific embodiment under the following conditions: DWDM; a plurality of spans as shown in Fig. 2; dispersion compensation every span; a very long haul transmission (1,000km-5,000km); and compensation of the residual chromatic dispersion. However, the claimed subject matter is related to the CWDM which is apparently distinguishable from the DWDM. Although the distance (the transmission distance in Fig. 2) shown in Fig. 4 of Essiambre et al. is 1,000km or more, Applicant is unaware of the CWDM in distance over 1,000km. A dispersion compensation in the CWDM may not been performed in Essiambre et al.

Furthermore, the Examiner admitted that Zhou et al. does not disclose that the optical transmitter light source is a non-temperature controlled direct modulation CWDM light source. However, the Examiner asserted that Deng et al. discloses that inexpensive, non-temperature controlled lasers in WDM systems can be used with sufficient wavelength spacing. According to the Examiner, it would have been obvious to use non-temperature controlled lasers and sufficient

wavelength spacing in the WDM, to avoid the additional cost associated with temperature controlled lasers, as taught by Deng et al.

Regarding the non-temperature controlled direct modulation light source, an external modulation light source (chirp free) is generally used in the DWDM, but a direct modulation light source generally has a positive chirp and is not used in the DWDM.

The claimed subject matter does not use the non-temperature controlled direct modulation light source in the DWDM. It is technically impossible to maintain such a light source in the claimed system. On the other hand, the use of direct controlled dispersion compensator in the CWDM causes increase in cost, which is inconsistent with the Examiner's asserted motivation to modify the apparatus of Zhou et al. based on Deng et al.: "to avoid the additional cost associated with temperature controlled lasers" to arrive at the claimed subject matter including the optical transmitter configured for outputting CWDM signal light.

In the claimed optical transmission system, the non-temperature controlled dispersion compensator is used, and the accumulated chromatic dispersion is set to negative over a temperature range of 0°C to 60°C, at the signal emitting end of the optical fiber transmission. By this configuration, the optical transmission system can realize CWDM transmission in which a transmission quantity enabling a sufficient transmission is ensured. Such a technical concept cannot be easily achieved.

The Examiner did not consider the above described differences between the CWDM and the DWDM in combining Zhou et al. and Deng et al. Accordingly, there is no factual basis to support the Examiner's position that a person skilled in the art would have been motivated to modify the apparatus of Zhou et al. based on the teachings of Deng et al.

Based on the foregoing, Applicant submits that the applied combination of Zhou et al., Deng et al., Essiambre et al., and Miller does not teach an optical transmission system including all the limitations recited in independent claim 1 within the meaning of 35 U.S.C. §103. The above discussion is applicable to independent claim 12. Dependent claims 5 and 16 are also patentably distinguishable over Zhou et al., Deng et al., Essiambre et al., and Miller at least because these claims include all the limitations recited in independent claims 1 and 12, respectively. Applicant, therefore, respectfully solicits withdrawal of the rejection of claims 1, 5, 12, and 16 under 35 U.S.C. §103, and favorable consideration thereof.

Claims 2, 3, 6, 7, 13, 14, 17, and 18 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Zhou et al., in view of Deng et al., and further in view of Essiambre et al., and further in view of Miller, and further in view of Kartalopoulos; and claims 10, 11, 21, and 22 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Zhou et al., in view of Deng et al., and further in view of Essiambre et al., and further in view of Miller, and further in view of Gabitov.

Each of the above rejections of claims 2, 3, 6, 7, 13, 14, 17, and 18 and of claims 10, 11, 21, and 22 is traversed. Specifically, claims 2, 3, 6, 7, 10, and 11 depend from independent claim 1, and claims 13, 14, 17, 18, 21, and 22 depend from independent claim 12. Applicant incorporates herein the arguments regarding the rejection of claims 1 and 12 under 35 U.S.C. § 103 for obviousness predicated upon Zhou et al., in view of Deng et al., and further in view of Essiambre et al., and further in view of Miller. The Examiner's additional comments and secondary reference to Kartalopoulos and Gabitov do not cure the deficiencies of the combination of Zhou et al., Deng et al., Essiambre et al., and Miller.

Applicant, therefore, respectfully solicits withdrawal of the rejections of claims 2, 3, 6, 7, 13, 14, 17, and 18 and of claims 10, 11, 21, and 22 under 35 U.S.C. § 103.

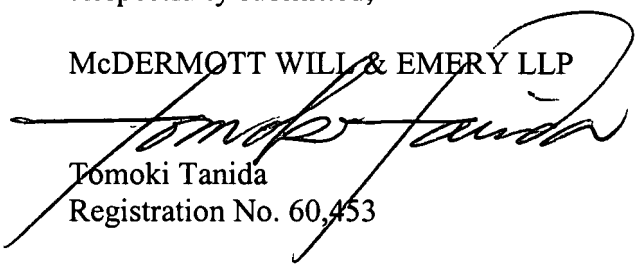
Conclusion

It should, therefore, be apparent that the imposed rejections have been overcome and that all pending claims are in condition for immediate allowance. Favorable consideration is, therefore, respectfully solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



Tomoki Tanida
Registration No. 60,453

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 BKS:TT:mjb
Facsimile: 202.756.8087
Date: July 30, 2007

Please recognize our Customer No. 20277 as our correspondence address.

WDC99 1430471-1.050212.0524